

CHAPTER 2

DESCRIPTION OF THE SOUTH FORK HOLSTON RIVER WATERSHED

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2.1. BACKGROUND. Native Americans called the Holston River “Hogoheegee.” Early explorers called it “Indian River” and French traders called it the “Cherokee River.” Today, the Holston River is named in honor of Stephen Holston (also spelled Holstein). Holston, an early explorer and surveyor with The Expedition of 1748, was the first settler to explore the Holston River system, including South Fork of the Holston River.

This Chapter describes the location and characteristics of the Group 3 portion of the Tennessee portion of the South Fork Holston River Watershed.

2.2. DESCRIPTION OF THE WATERSHED.

2.2.A. General Location. The South Fork Holston River Watershed is located in Tennessee and Virginia. The Group 3 portion of the Tennessee portion of the South Fork Holston River Watershed (34.9% of the entire Tennessee portion; 16.8% of the entire watershed) includes parts of Greene, Hawkins, Sullivan, and Washington Counties.

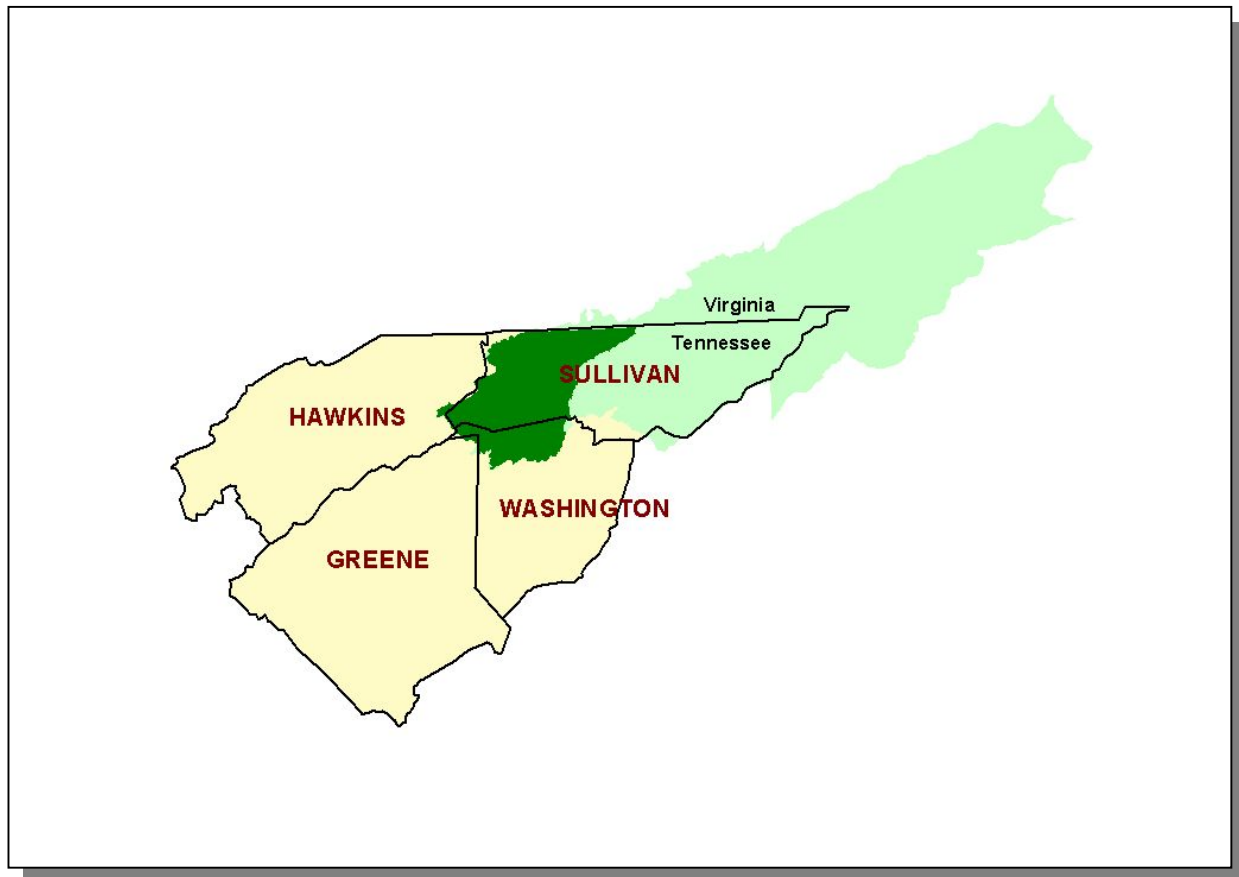


Figure 2-1. General Location of the Group 3 Portion of the Tennessee Portion of the South Fork Holston River Watershed. Dark green, Group 3 portion of the Tennessee portion (194 square miles); light green, Group 2 (363 square miles) and Virginia (619 square miles) portions.

COUNTY	% OF WATERSHED IN EACH COUNTY
Sullivan	75.9
Washington	22.8
Hawkins	0.9
Greene	0.3

Table 2-1. The Group 3 Portion of the Tennessee Portion of the South Fork Holston River Watershed Includes Parts of Four East Tennessee Counties. Percentages are calculated for the Group 3 portion of the Tennessee portion of watershed.

2.2.B. Population Density Centers. Three state highways and one interstate serve the major communities in the Group 3 portion of the Tennessee Portion of the South Fork Holston River Watershed.

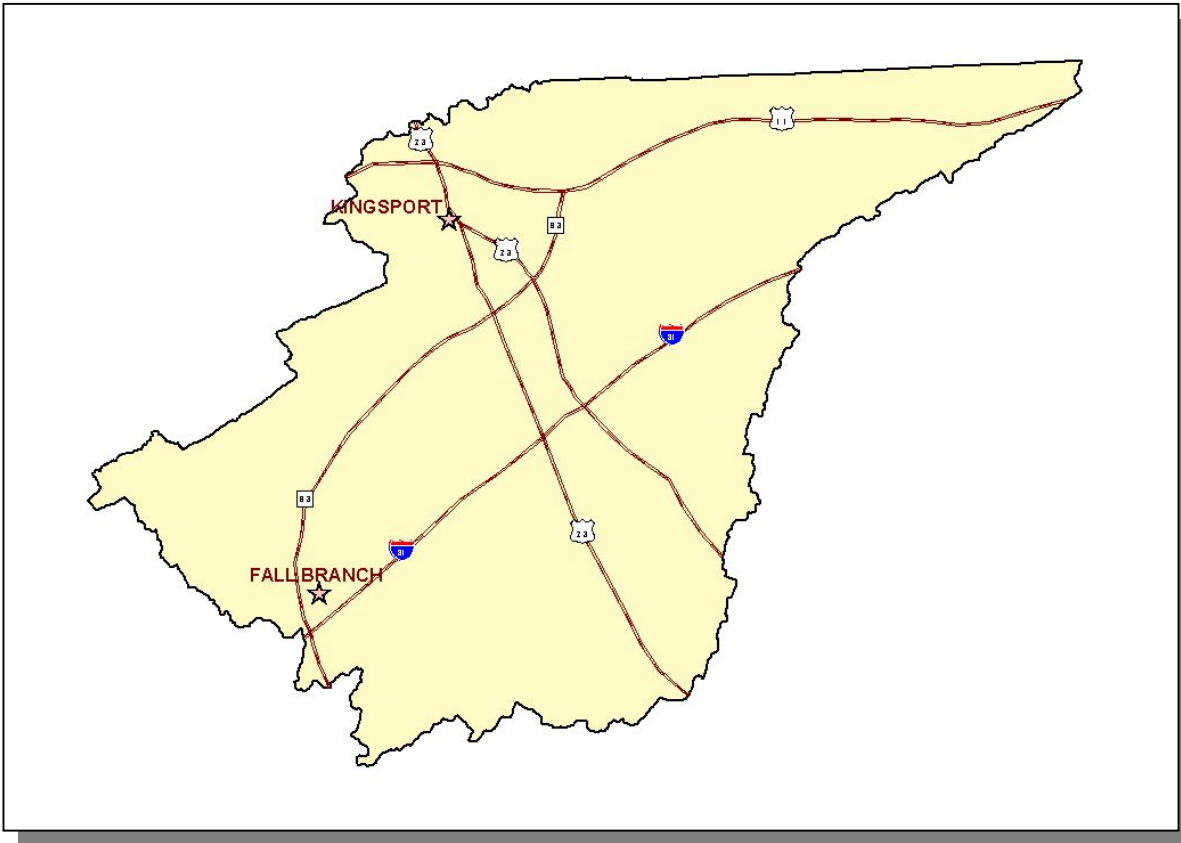


Figure 2-2. Municipalities and Roads in the Group 3 Portion of the Tennessee Portion of the South Fork Holston River Watershed.

MUNICIPALITY	POPULATION	COUNTY
Kingsport	42,769	Sullivan

Table 2-2. Communities and Populations in the Group 3 Portion of the Tennessee Portion of the South Fork Holston River Watershed. Population based on 1999 census (Tennessee 2001/2002 Blue Book).

2.3. GENERAL HYDROLOGIC DESCRIPTION.

2.3.A. Hydrology. The South Fork Holston River Watershed, designated 06010102 by the USGS, drains approximately 1,179 square miles, 559 square miles of which are in Tennessee (194 square miles of which are Group 3), and empties to the Holston River watershed (06010104).

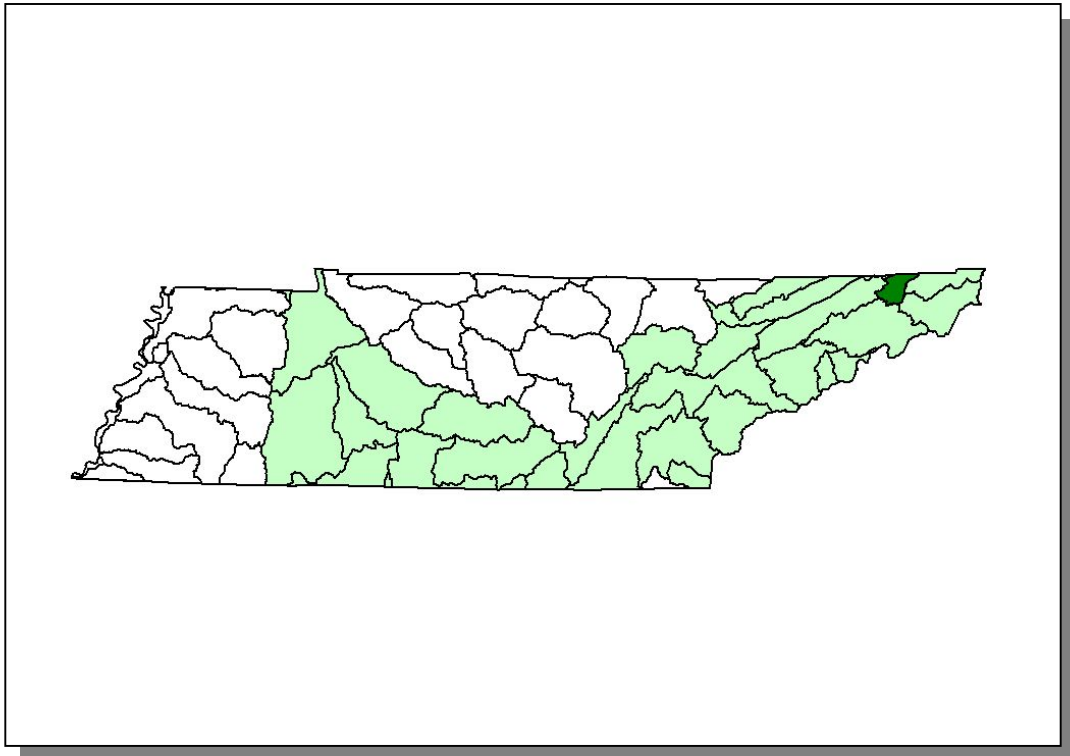


Figure 2-3. The South Fork Holston River Watershed is Part of the Tennessee River Basin.
The Group 3 portion is shown in dark green.

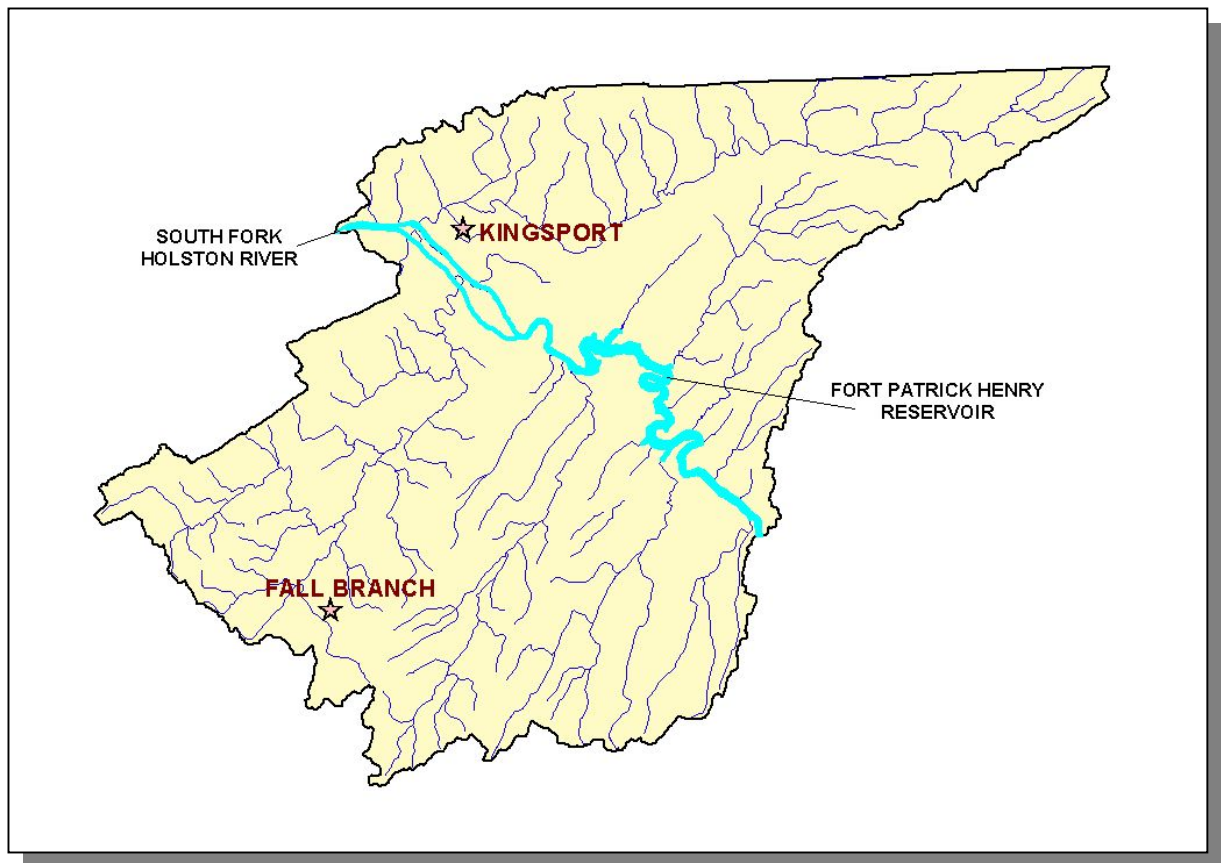


Figure 2-4. Hydrology in the Group 3 Portion of the Tennessee Portion of the South Fork Holston River Watershed. There are 300 stream miles as catalogued in the River Reach File 3 database in the Group 3 portion of the Tennessee portion of the South Fork Holston River Watershed. An additional 550 stream miles are located in the Group 2 portion of the Tennessee portion of the watershed, and 942 stream miles are located in the Virginia portion of the watershed as catalogued in the River Reach File 3 database. 12,884 lake acres are located in the Tennessee portion of the entire watershed. Location of the South Fork Holston River and Fort Patrick Henry Reservoir, and the cities of Fall Branch and Kingsport are shown for reference.

2.3.B. Dams. There are 2 dams inventoried by TDEC Division of Water Supply in the Group 3 Portion of the Tennessee Portion of the South Fork Holston River Watershed. These dams either retain 30 acre-feet of water or have structures at least 20 feet high.

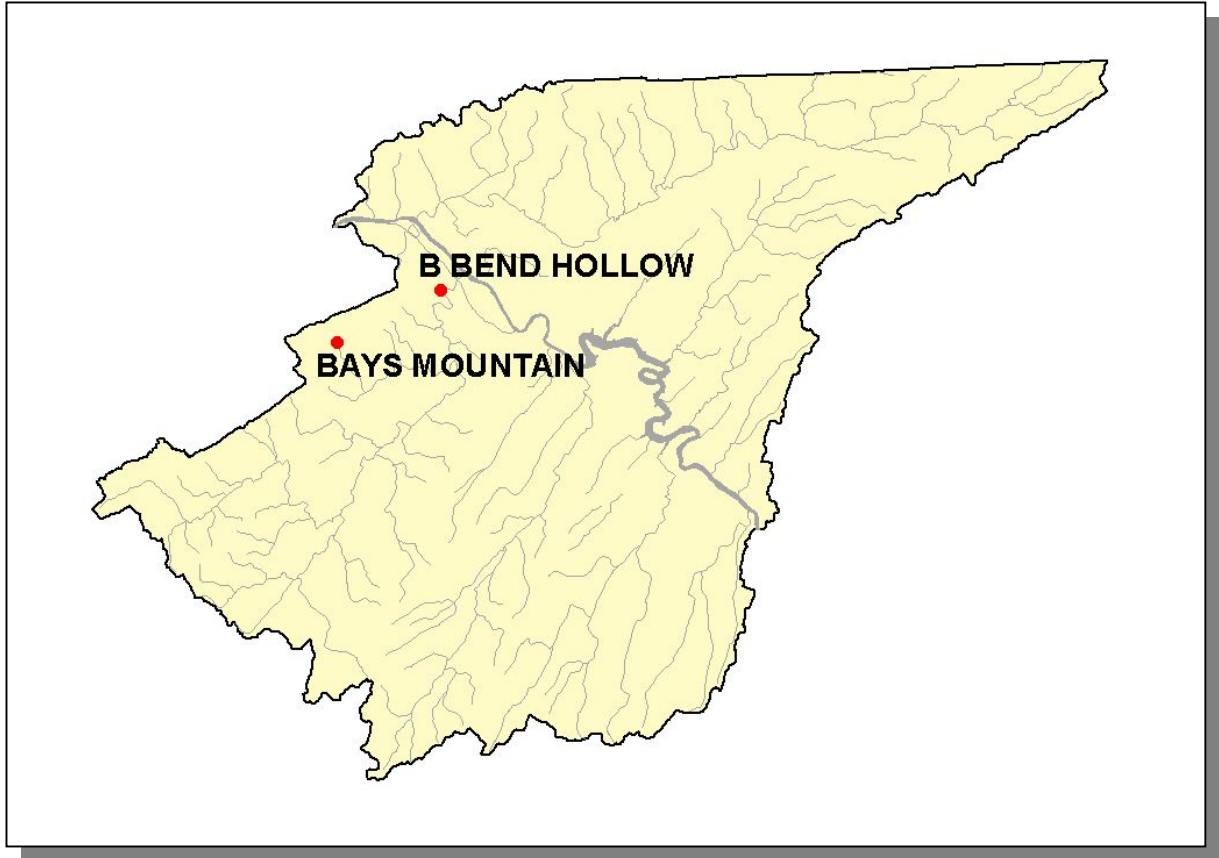


Figure 2-5. Location of Inventoried Dams in the Group 3 Portion of the Tennessee Portion of the South Fork Holston River Watershed. More information is provided in Appendix II and on the TDEC homepage at <http://qwidc.memphis.edu/website/dws/>.

2.4. LAND USE. Land Use/Land Cover information was provided by EPA Region 4 and was interpreted from 1992 Multi-Resolution Land Cover (MRLC) satellite imagery.

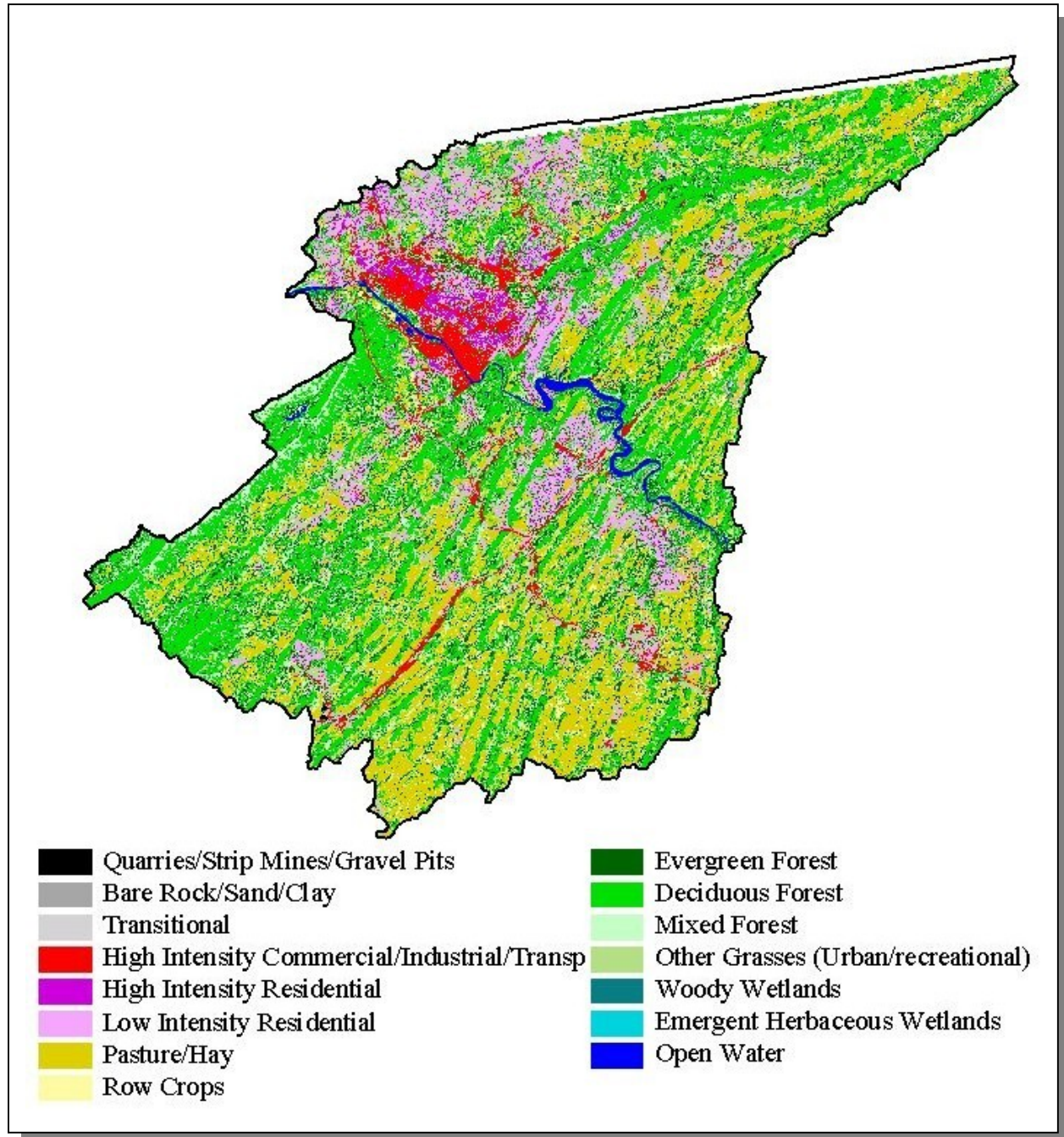


Figure 2-6. Illustration of Select Land Cover/Land Use Data from MRLC Satellite Imagery in the Group 3 Portion of the Tennessee Portion of the South Fork Holston River Watershed.

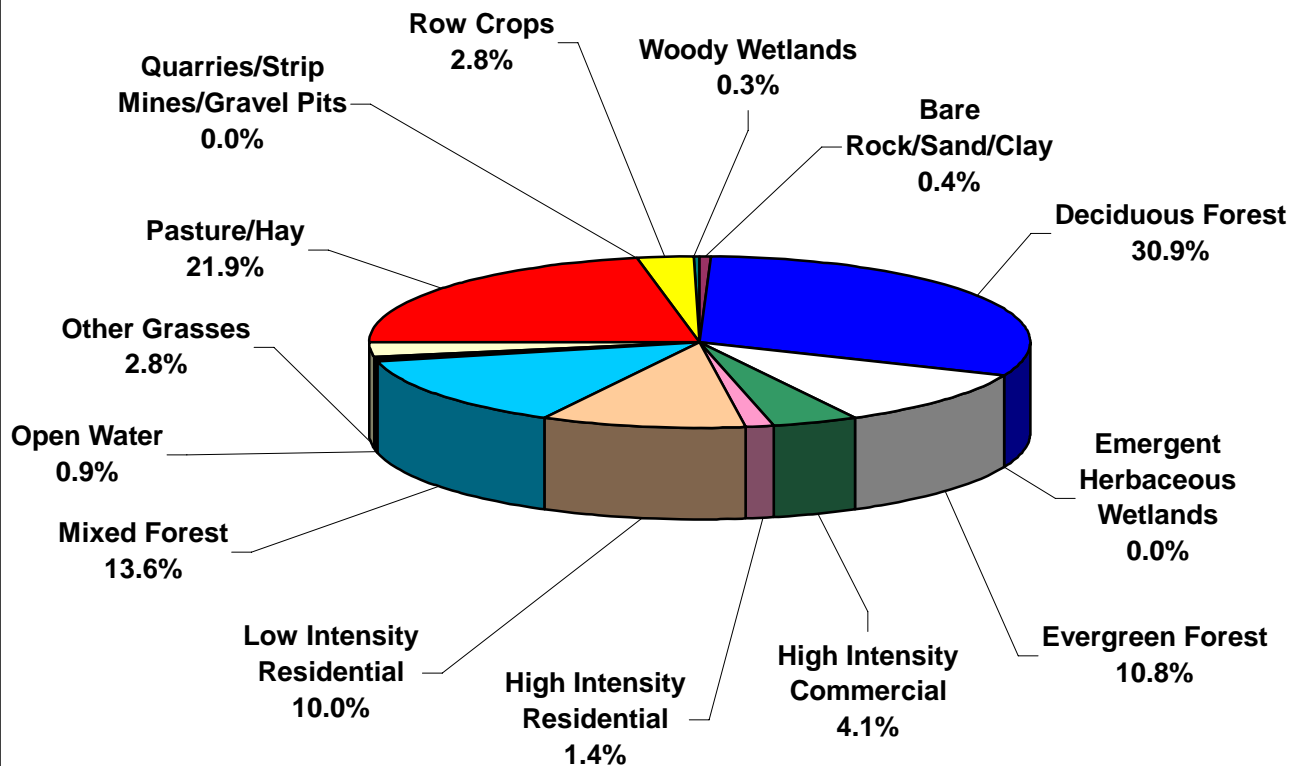


Figure 2-7. Land Use Distribution in the Group 3 Portion of the Tennessee Portion of the South Fork Holston River Watershed. More information is provided in Appendix II.

Sinkholes, springs, disappearing streams and caves characterize karst topography. The term “karst” describes a distinctive landform that indicates dissolution of underlying soluble rocks by surface water or ground water. Although commonly associated with limestone and dolomite (carbonate rocks), other highly soluble rocks such as gypsum and rock salt can be sculpted into karst terrain. In karst areas, the ground water flows through solution-enlarged channels, bedding planes and microfractures within the rock. The characteristic landforms of karst regions are: closed depressions of various size and arrangement; disrupted surface drainage; and caves and underground drainage systems. The term “karst” is named after a famous region in the former country of Yugoslavia.

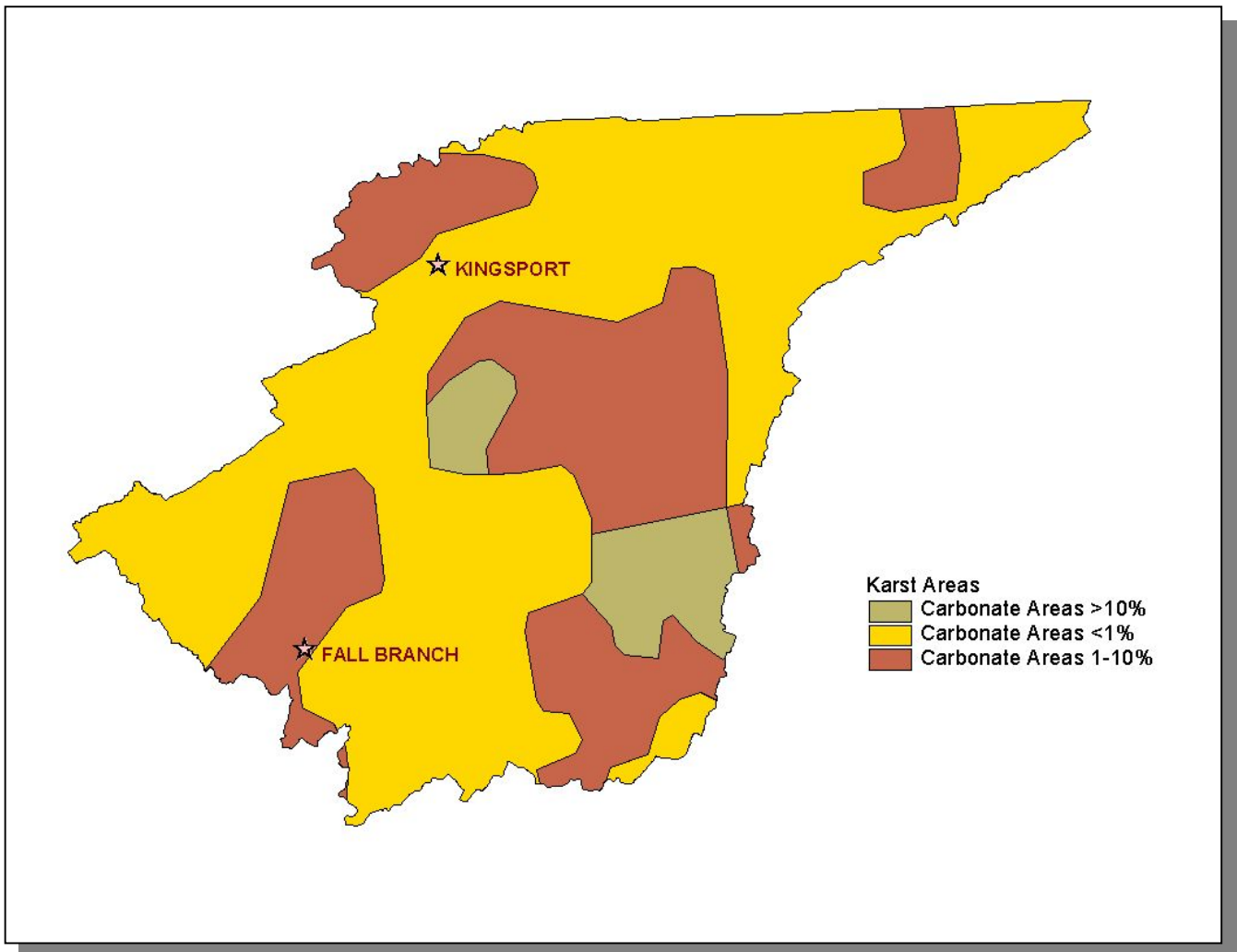


Figure 2-8. Illustration of Karst Areas in Group 3 Portion of Tennessee Portion of South Fork Holston River Watershed. Locations of Fall Branch and Kingsport are shown for reference.

2.5. ECOREGIONS AND REFERENCE STREAMS. Ecoregions are relatively homogeneous areas of similar geography, topography, climate and soils that support similar plant and animal life. Ecoregions serve as a spatial framework for the assessment, management, and monitoring of ecosystems and ecosystem components. Ecoregion studies can aid the selection of regional stream reference sites, identifying high quality waters, and developing ecoregion-specific chemical and biological water quality criteria.

There are eight Level III Ecoregions and twenty-five Level IV subcoregions in Tennessee. The Group 3 portion of the Tennessee portion of the South Fork Holston River Watershed lies within a single Level III ecoregion (Ridge and Valley) and contains 4 Level IV subcoregions:

- **Southern Limestone/Dolomite Valleys and Low Rolling Hills (67f)** form a heterogeneous region composed predominantly of limestone and cherty dolomite. Landforms are mostly low rolling ridges and valleys, and the soils vary in their productivity. Landcover includes intensive agriculture, urban and industrial uses, as well as areas of thick forest. White oak forest, bottomland oak forest, and sycamore-ash-elm riparian forests are the common forest types. Grassland barrens intermixed with cedar-pine glades also occur here.
- **Southern Shale Valleys (67g)** consist of lowlands, rolling valleys, slopes and hilly areas that are dominated by shale materials. The northern areas are associated with Ordovician-age calcareous shale, and the well-drained soils are often slightly acid to neutral. In the south, the shale valleys are associated with Cambrian-age shales that contain some narrow bands of limestone, but the soils tend to be strongly acid. Small farms and rural residences subdivide the land. The steeper slopes are used for pasture or have reverted to brush and forested land, while small fields of hay, corn, tobacco, and garden crops are grown on the foot slopes and bottom land.
- **Southern Sandstone Ridges (67h)** encompass the major sandstone ridges with areas of shale and siltstone. The steep, forested ridges have narrow crests with soils that are typically stony, sandy, and of low fertility. The chemistry of streams flowing down the ridges can vary greatly depending on the geological material. The higher elevation ridges are in the north, including Wallen Ridge and Powell, Clinch and Bays Mountains. White Oak Mountain in the south has some sandstone on the west side, with abundant shale and limestone. Grindstone Mountain, capped by the Gizzard Group sandstone, is the only remnant of Pennsylvanian-age strata in the ridge and valley of Tennessee.
- **Southern Dissected Ridges and Knobs (67i)** contain crenulated, broken, or hummocky ridges. The ridges on the east side of Tennessee's Ridge and Valley tend to be associated with the Ordovician Sevier shale, Athens shale, and Holston and Lenoir limestones. These can include calcareous shale, limestone, siltstone, sandstone, and conglomerate. In the central and western part the shale ridges are associated with the Cambrian-age Rome Formation:

shale and siltstone with beds of sandstone. Chestnut oak forests and pine forests are typical for the higher elevations of the ridges, with white oak, mixed mesophytic forest, and tulip poplar on the lower slopes, knobs, and draws.

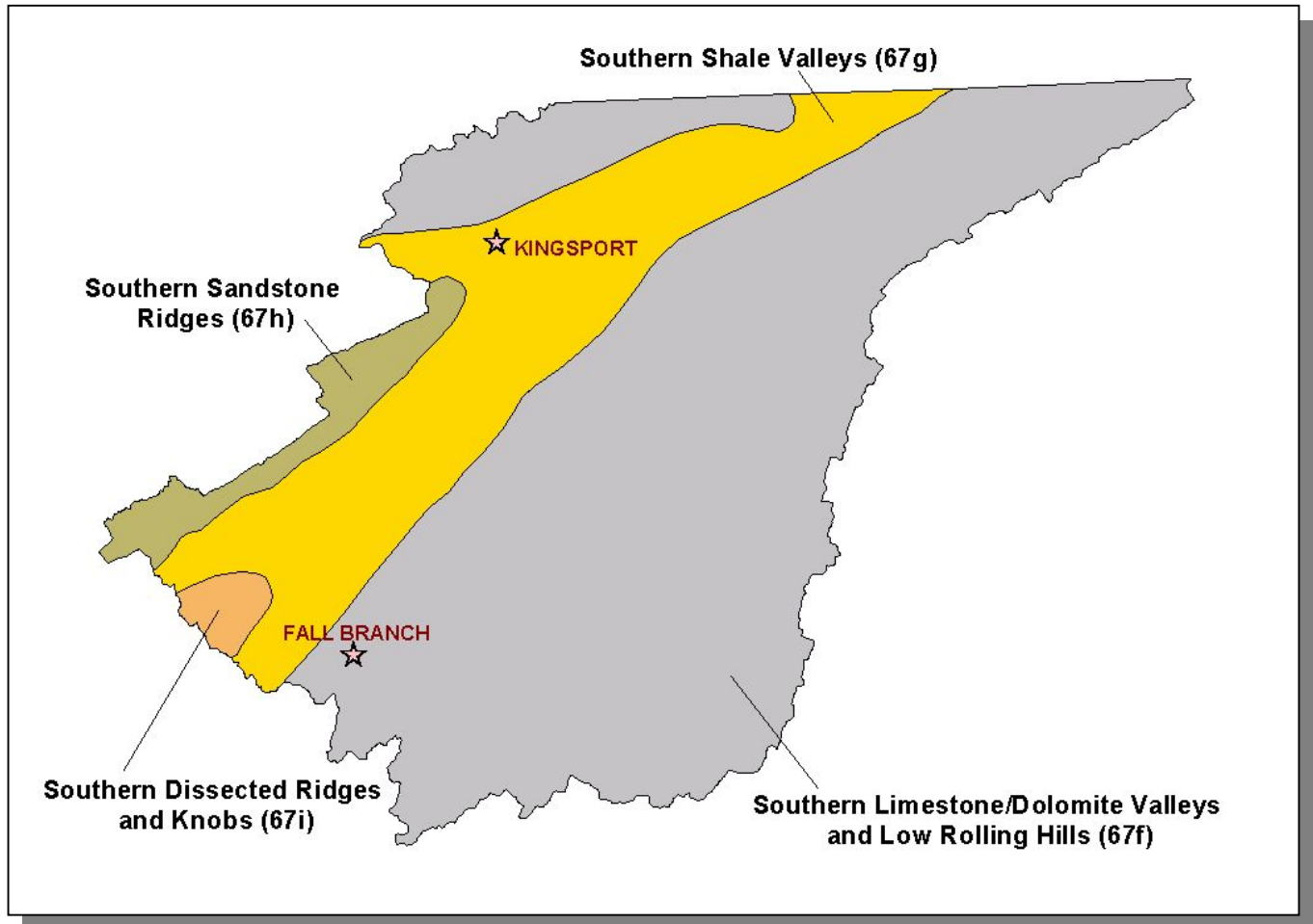


Figure 2-9. Level IV Ecoregions in the Group 3 Portion of the Tennessee Portion of the South Fork Holston River Watershed. Locations of Fall Branch and Kingsport are shown for reference.

Each Level IV Ecoregion has at least one reference stream associated with it. A reference stream represents a least impacted condition and may not be representative of a pristine condition.

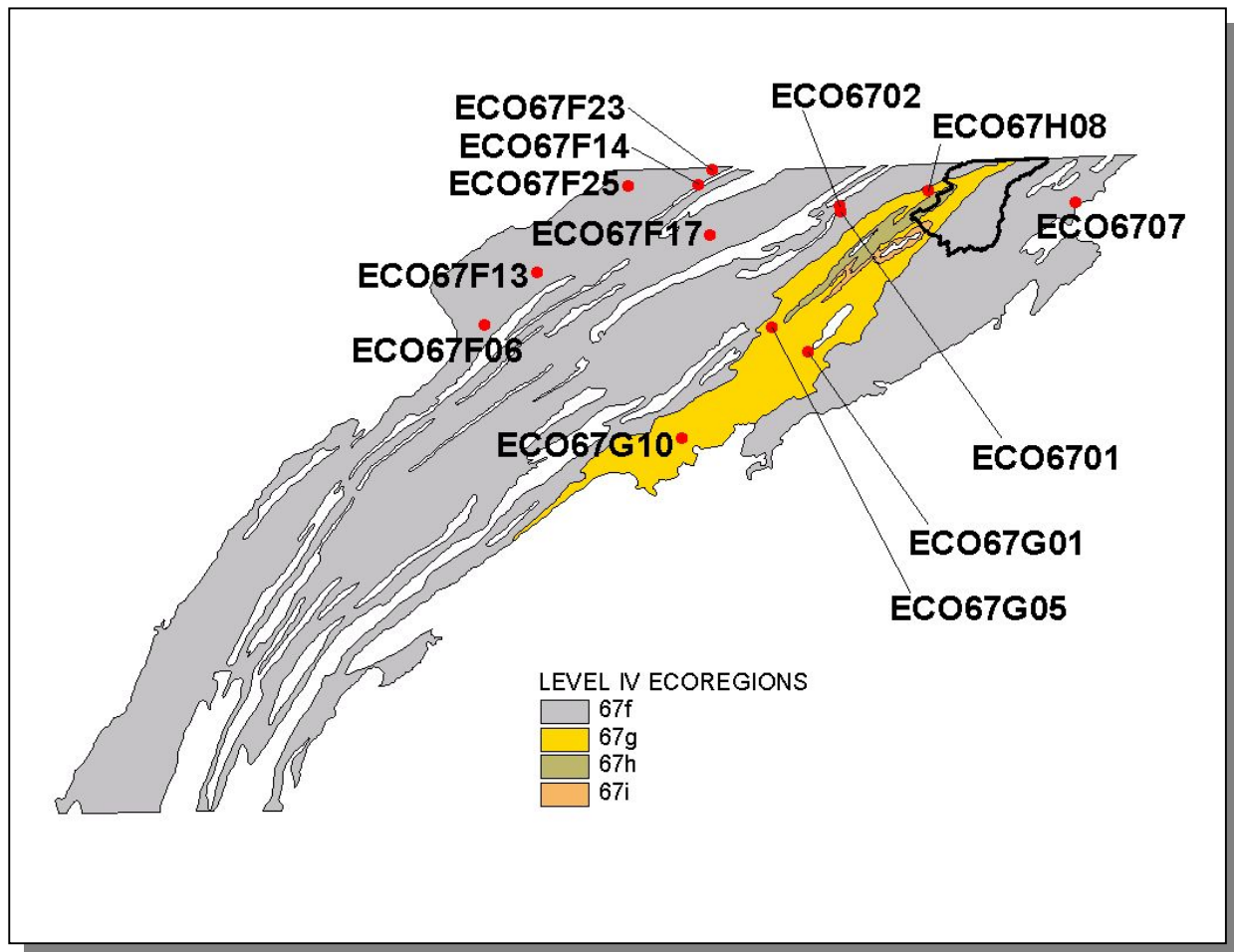


Figure 2-10. Ecoregion Monitoring Sites in Level IV Ecoregions 67f, 67g, 67h, and 67i in Tennessee. The Group3 portion of the Tennessee portion of the South Fork Holston River Watershed boundary is shown for reference. More information is provided in Appendix II.

2.6. NATURAL RESOURCES.

2.6.A. Rare Plants and Animals. The Heritage Program in the TDEC Division of Natural Heritage maintains a database of rare species that is shared by partners at The Nature Conservancy, Tennessee Wildlife Resources Agency, the US Fish and Wildlife Service, and the Tennessee Valley Authority. The information is used to: 1) track the occurrence of rare species in order to accomplish the goals of site conservation planning and protection of biological diversity, 2) identify the need for, and status of, recovery plans, and 3) conduct environmental reviews in compliance with the federal Endangered Species Act.

GROUPING	NUMBER OF RARE SPECIES
Insects and Spiders	3
Mussels	3
Snails	2
Amphibians	2
Birds	9
Fish	6
Mammals	10
Reptiles	1
Plants	78
Total	114

Table 2-3. There are 114 Known Rare Plant and Animal Species in the Tennessee Portion (Groups 2 and 3) of the South Fork Holston River Watershed.

In the Tennessee Portion of the South Fork Holston River Watershed (Groups 2 and 3 portions), there are 6 rare fish species, 4 rare mussel species, and 2 rare snail species.

SCIENTIFIC NAME	COMMON NAME	FEDERAL STATUS	STATE STATUS
<i>Cyprinella monacha</i>	Spotfin Chub	LT	T
<i>Etheostoma acuticeps</i>	Sharphead Darter		
<i>Etheostoma percnurum</i>	Duskytail Darter	LE	E
<i>Percina burtoni</i>	Blotchside Darter	MC	D
<i>Percina macrocephala</i>	Longhead Darter		T
<i>Phoxinus tennesseensis</i>	Tennessee Dace		D
<i>Epioblasma florentina walkeri</i>	Tan Riffleshell	LE	E
<i>Pegias fibula</i>	Little-Wing Pearly Mussel	LE	E
<i>Quadrula intermedia</i>	Cumberland Monkeyface	LE	E
<i>Helicodiscus notius specus</i>	A Land Snail		
<i>Io fluvialis</i>	Spiny Riversnail		

Table 2-4. Rare Aquatic Species in the Tennessee Portion of the South Fork Holston River Watershed. Federal Status: LE, Listed Endangered by the U.S. Fish and Wildlife Service; LT, Listed Threatened by the U.S. Fish and Wildlife Service; MC, Management Concern for U.S. Fish and Wildlife Service. State Status: E, Listed Endangered by the Tennessee Wildlife Resources Agency; T, Listed Threatened by the Tennessee Wildlife Resources Agency; D, Deemed in Need of Management by the Tennessee Wildlife Resources Agency. More information may be found at <http://www.state.tn.us/environment/nh/data.php>.

2.6.B. Wetlands. The Division of Natural Heritage maintains a database of wetland records in Tennessee. These records are a compilation of field data from wetland sites inventoried by various state and federal agencies. Maintaining this database is part of Tennessee's Wetland Strategy, which is described at:

<http://www.state.tn.us/environment/nh/wetlands/>

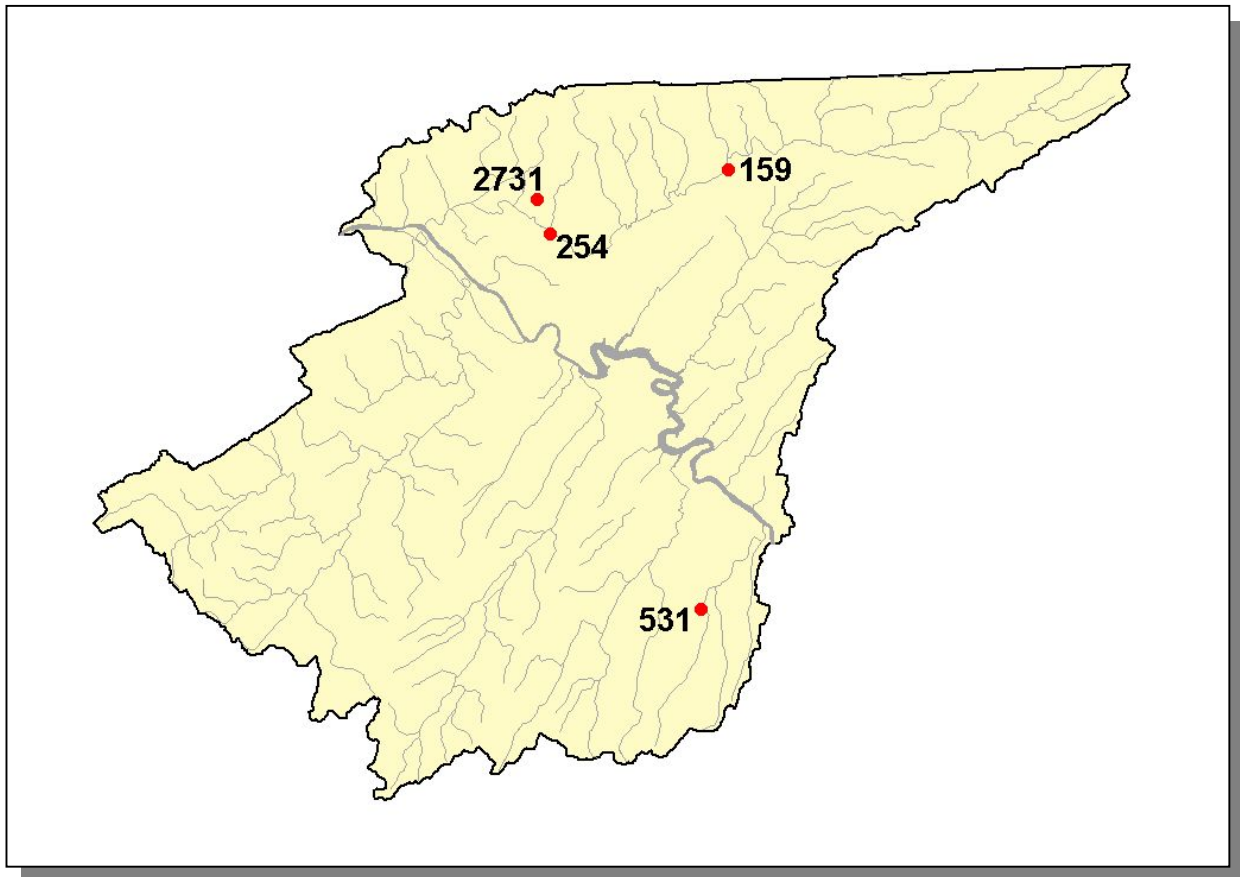


Figure 2-11. Location of Wetland Sites in TDEC Division of Natural Heritage Database in the Group 3 Portion of the Tennessee Portion of the South Fork Holston River Watershed. This map represents an incomplete inventory and should not be considered a dependable indicator of the presence of wetlands. More information is provided in Appendix II.

2.7. CULTURAL RESOURCES.

2.7.A. Greenways. The Group 3 portion of the Tennessee portion of the South Fork Holston River Watershed has at least three greenways/trails:

- Borden Park Trail in Kingsport
- Kingsport Greenbelt
- Memorial Park Trail in Kingsport

More information about greenways and trails in the watershed may be found at:

<http://www2.state.tn.us/tdec/GREENWAYS/tnmap.htm>

2.7.B. Interpretive Areas. Some sites representative of the natural or cultural heritage are under state or federal protection:

- Boone Reservation is located along both banks of the South Holston River (Mile 18.6 to 35.0), Watauga River, and Beaver Creek. The reservation has several privately-owned commercial marinas and docks on the lake. The site is managed by TVA.
- Fort Patrick Henry is named after the colonial fort in honor of the revolutionary war era Virginian. Also called Long Island Station, the original fort is located where Kingsport is today. The site is managed by TVA.
- Warrior's Path State Park is named for the nearby war and trading path used by the Cherokee. The 950-acre park on Patrick Henry Reservoir was acquired from TVA in 1952. The site is managed by the state of Tennessee.

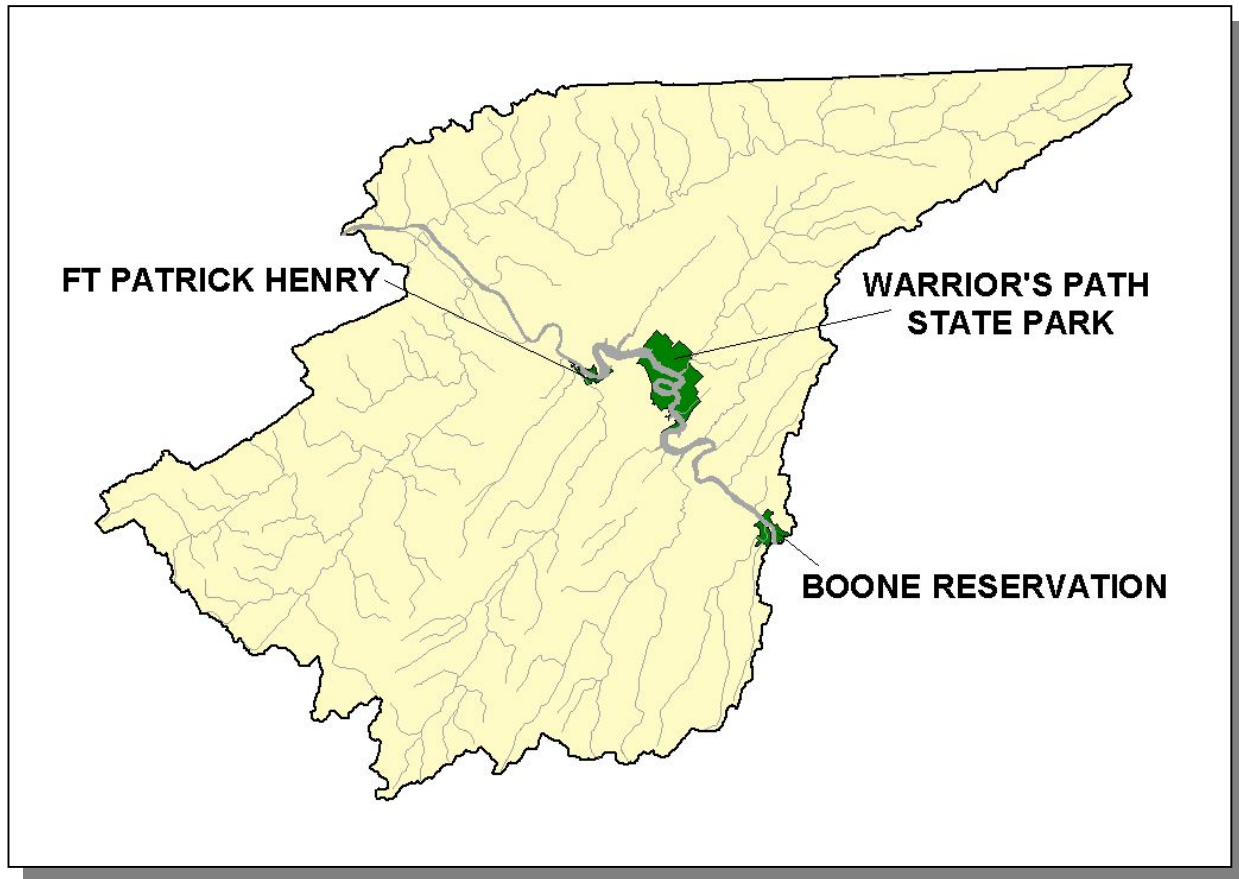


Figure 2-12. Locations of State- and Federally-Managed Lands in the Group 3 Portion of the Tennessee Portion of the South Fork Holston River Watershed.

2.8. Tennessee Rivers Assessment Project. The Tennessee Rivers Assessment is part of a national program operating under the guidance of the National Park Service's Rivers and Trails Conservation Assistance Program. The Assessment is an inventory of river resources, and should not be confused with "Assessment" as defined by the Environmental Protection Agency. A more complete description can be found in the Tennessee Rivers Assessment Summary Report, which is available from the Department of Environment and Conservation and on the web at:

<http://www.state.tn.us/environment/wpc/publications/riv/>

STREAM	NSQ	RB	RF		STREAM	NSQ	RB	RF
Cedar Creek	3,4		3		Reedy Creek	4		2
Fall Creek			3		Rock Springs Creek	4		
Ford Creek	3				Sinking Creek	3		
Horse Creek	3				South Fork Holston River	3,4	2	
Kendrick Creek	3							

Table 2-5. Stream Scoring from the Tennessee Rivers Assessment Project in the Group 3 Portion of the South Fork Holston River Watershed.

Categories: NSQ, Natural and Scenic Qualities
RB, Recreational Boating
RF, Recreational Fishing

Scores: 1. Statewide or greater Significance; Excellent Fishery
2. Regional Significance; Good Fishery
3. Local Significance; Fair Fishery
4. Not a significant Resource; Not Assessed